

CLAIMS

1. A process for oligomerizing isobutene, comprising:
oligomerizing isobutene in the presence of n-butene over a solid, acidic ion
5 exchanger having acidic protons;
wherein at least one acidic proton of said ion exchanger has been
exchanged for a metal ion.
2. The process according to claim 1, wherein from 0.1 to 30% of said
10 acidic protons of the ion exchanger have been exchanged for metal ions.
3. The process according to claim 1, wherein an isobutenic hydrocarbon
mixture comprising isobutene, 1-butene, 2-butene and butanes is used for said
oligomerizing.
- 15 4. The process according to claim 1, wherein the metal ions are ions
selected from the group consisting of alkali metals, alkaline earth metals, rare earth
metals and mixtures thereof.
- 20 5. The process according to claim 3, wherein said isobutenic hydrocarbon
mixture is at least partially in the liquid phase during said oligomerizing.
6. The process according to claim 1, wherein said oligomerizing is carried
out at a temperature of from 5 to 160°C.
- 25 7. The process according to claim 3, wherein less than 5 mol% of said 1-
butene is isomerized to 2-butene.
8. The process according to claim 1, wherein an effluent of said
30 oligomerizing is fractionated into C₈-olefins and C₄-olefins.
9. The process according to claim 8, wherein isobutene is present in said
C₄-olefinic fraction; and

wherein said isobutene is etherified with an alcohol in at least one further reaction stage.

10. The process according to claim 8, wherein the C₈-olefinic fraction is
5 hydrogenated to give saturated hydrocarbons.

11. The process according to claim 1, wherein said ion exchanger is a solid
sulfonated ion exchange resins in which from 0.1 to 60% of the acidic protons of
the sulfonic acid groups have been exchanged for metal ions.

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12. The process according to claim 1, wherein an ion exchange capacity of
said ion exchange resin is between 1 and 2 mol.

13. The process according to claim 1, wherein a pore volume of said ion
15 exchange resin is from 30 to 60 ml/g.

14. The process according to claim 1, wherein a particle size of said ion
exchange resin is between 500 µm and 1500 µm.

20 15. A process for preparing 1-butene from C₄-hydrocarbon comprising:
converting a C₄-hydrocarbon mixture over an acidic, solid ion exchanger
having acidic protons;

wherein at least one acidic protons of said ion exchanger has been
exchanged for a metal ion, thereby obtaining a reaction product; and

25 wherein the 1-butene is removed from the reaction product by distillation.

16. The process of claim 15, wherein from 0.1 to 30% of said acidic
protons of the ion exchanger have been exchanged for metal ions.

30 17. The process of claim 16, wherein a mixture comprising at least one
component selected from the group consisting of isobutene, 1-butene, 2-butene,
butanes is used for said oligomerizing.